

**HIERARCHICAL FAILURE MANAGEMENT  
FOR PROCESS CONTROL SYSTEMS**

**ABSTRACT OF THE DISCLOSURE**

5           A hierarchical failure management technique uses an integrated equipment  
hierarchy to automatically pass failure information from control modules to unit  
modules. Each control module collects failure information and generates a  
composite failure code by mathematically combining the failure information  
collected by that module. Modules which are currently needed by a phase of the  
10       unit module to carry out a process automatically send respective failure codes to the  
unit module. The unit module selects the worst failure code from a list of failure  
codes within the unit module and compares the selected worst failure code to a  
predetermined threshold value to determine whether the process should continue.